Fact Sheet
Statewide Bacteria TMDL

February 2019

Bacteria-impaired waters occur throughout Kentucky. In its 2014 Integrated Water Quality Report to Congress, the Kentucky Division of Water (DOW) identified 331 waterbodies that are impaired due to bacteria. Specifically, these waters have not met the state water quality standards for *E. coli* and/or fecal coliform. These types of bacteria indicate the likelihood that these waters contain pathogens, or disease-causing agents, associated with contamination from human or animal wastes. The *E. coli* and fecal coliform standards are intended to protect the health of those using surface waters for swimming, wading, boating and other recreation. Bacteria-impaired waterbodies occur in every major river basin in Kentucky.

Total Maximum Daily Loads for impaired waters

The federal Clean Water Act requires states to establish a Total Maximum Daily Load (TMDL) for each of these waters. A TMDL for a bacteria-impaired water is a calculation of the daily amount of *E. coli* and/or fecal coliform that can be added to the waterbody while still allowing it to meet the water quality standard.

A TMDL can provide insight into the scope of the problem and a foundation for putting solutions into action. With the current bacteria TMDL method and staffing levels, it would take decades to complete TMDLs for all of the bacteria-impaired waters. To streamline the process of TMDL development, DOW will use a statewide perspective, in contrast to previous TMDLs developed at a watershed level.

TMDLs for bacteria are calculated by taking the water quality standard, given as colonies of bacteria per volume of water, and multiplying it by the flow in the waterbody, in volume of water per unit time. The resulting load is in units of colonies per day. This load is then allocated among the different sources of bacteria entering the waterbody. Each allocation represents an allowable load for a source. Sources permitted under the Kentucky Pollutant Discharge Elimination System (KPDES) receive a wasteload allocation. Sources not subject to a KPDES permit receive a load allocation.

What's different about a statewide approach?

Previously approved TMDL documents have used a numeric flow value to calculate the TMDL. In the statewide bacteria TMDL approach, a flow value is not substituted into the equation. Instead, the TMDL, along with all wasteload and load allocations, is left in equation form. The TMDL thus applies over a range of flow conditions.

Using the statewide approach to streamline the development of bacteria TMDLs will allow DOW to focus limited resources on priority waterbodies where there is the greatest likelihood of success at reducing bacteria load.

What's in the statewide bacteria TMDL:

- Water quality goals
- Suspected sources of bacteria
- How the TMDL is calculated
- Potential actions to reduce bacteria loads
- Details for individual impaired waters in an appendix
- Appendix of impaired waters will be updated periodically, with public notice, to incorporate newly found impaired waters

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Frequently Asked Questions

Will every waterbody in Kentucky be included in the statewide TMDL?

No. The statewide TMDL will only include those waterbodies that have been identified as impaired by *E. coli* and/or fecal coliform on the most recent USEPA-approved 303(d) list of the Integrated Report. DOW submits the Integrated Report every two years to the U.S. Environmental Protection Agency for approval.

What happens when new waterbodies are found to be impaired by bacteria?

Future monitoring may identify additional waterbodies with bacteria impairment. DOW will periodically update appendices to the statewide TMDL to include newly identified impaired waterbodies. A public notice of the updated appendices will be issued to invite comment from the public regarding the TMDLs for the new listings.

Kentucky already has a process for developing bacteria TMDLs. Why is the process changing?

Developing TMDLs for the 330+ currently identified waterbodies would take decades to complete with the current process and staffing levels. The statewide approach streamlines TMDL development for these waterbodies.

How is the statewide approach different from the existing process?

Previous TMDLs done on a watershed basis have involved intensive monitoring and data collection. The data has been used for land use analysis of subwatersheds, development of a load duration curve, and calculation of the existing bacteria load. Previous TMDLs have provided a specific loading of bacteria that a waterbody can assimilate at an identified rate of flow. The statewide bacteria TMDL will not include land use analysis of subwatersheds, development of a load duration curve, or calculation of the existing bacteria load. Analysis of land use is at a statewide level, with a focus on how categories of land use and associated proper or improper practices relate to bacteria loading levels. The TMDL will remain in equation form and be valid for a range of flow conditions.

The statewide approach will reduce or eliminate the amount of monitoring needed in a waterbody to develop the TMDL. Less monitoring for TMDL development will free up resources for monitoring the effectiveness of actions taken to reduce bacteria loading to waters.

How will the statewide bacteria TMDL regulate KPDES-permitted sources?

The TMDL assigns a wasteload allocation to each KPDES-permitted facility that discharges bacteria directly to an impaired waterbody included in the statewide TMDL. The statewide TMDL must be submitted to the U.S. EPA for approval. When the permit of a KPDES facility discharging to a waterbody with an approved TMDL comes up for renewal, the reissued permit must be written to be consistent with the wasteload allocation.

How will the statewide bacteria TMDL affect non-KPDES-permitted sources?

The TMDL will assign a load allocation to non-KPDES-permitted, or nonpoint, sources. However, compliance with load allocations is voluntary. Many types of nonpoint sources are not regulated by DOW, although some are regulated by the Kentucky Agriculture Water Quality Act.

FAQs – continued

If KPDES permit holders are already required to meet the water quality standard for bacteria, and compliance by nonpoint sources with the load allocation is voluntary, how will the statewide TMDL lead to lower bacteria loading in impaired waters?

The statewide bacteria TMDL will bring attention to the scope of the problem and the typical ways bacteria get into waterbodies. The TMDL provides information about actions that can be taken to reduce bacteria loads, including sources of technical assistance and funding. Within affected watersheds, stakeholders– residents, landowners, government entities, and others who use the water resource– will need to work together to identify the bacteria sources of greatest impact and develop the solutions most likely to be effective at minimizing the amount of bacteria reaching a waterbody.

What will the TMDL do about failing septic systems?

Failing septic systems receive no allocation beyond that of a properly functioning system. DOW does not regulate septic systems. Rather, local health departments administer programs relating to the requirements for installing and inspecting septic and other on-site treatment and disposal systems. Regulations for on-site sewage disposal systems are found in 902 KAR 10:085.

Will the new statewide bacteria TMDL replace TMDLs for bacteria-impaired waters that have already been approved?

No. TMDLs that are already approved will remain unchanged.

How will I know if my facility or waterbody will be included in the statewide TMDL?

The Water Health Portal, found at https://watermaps.ky.gov/WaterHealthPortal/, can be accessed to determine if your water is listed as impaired for primary or secondary contact recreation. If there is already a TMDL on your waterbody, this website includes a link to the TMDL report, if one is available.

For More Information:

You can learn more about TMDLs and where they are located by visiting the Kentucky Division of Water's Total Daily Maximum Load Program website at https://eec.ky.gov/Environmental-Protection/Water/Protection/TMDL/Pages/default.aspx.

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